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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,516	01/20/2004	Soo-suk Lee	YPL-0072	3429
23413	7590	06/15/2004	EXAMINER	
CANTOR COLBURN, LLP			YANG, NELSON C	
55 GRIFFIN ROAD SOUTH				
BLOOMFIELD, CT 06002			ART UNIT	PAPER NUMBER
			1641	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/761,516	Applicant(s) LEE ET AL.	
	Examiner Nelson Yang	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/20/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 3 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. While claim 3 recites that the probes the functional groups recited in claim 2 are capable of covalently binding proteins, nucleotides, or polysaccharides, applicant does not specifically claim the probes in claim 2 (only that the functional groups are capable of covalently binding probes), and therefore the limitation recited in claim 3 would not further limit claim 2.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3, 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. With respect to claim 3, applicant recites the limitation that the probes of claim 2 are capable of covalently binding proteins, nucleotides, or polysaccharides. However, in claim 2, applicant merely recites that the compounds have functional groups capable of covalently bind to probes. It is unclear if applicant intended to claim the probes as well, or if applicant only intended to establish that the functional groups were capable of covalently binding to proteins, nucleotides, or polysaccharides.

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5. With respect to claim 8, applicant recites the limitation that probes of claim 5 covalently bind to functional groups of compounds attached to the spot regions. It is unclear if the functional groups were attached to the spot regions before binding with the probes, or if they are attached as a result of binding with the probes.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Bao et al [Bao et al, Toward controllable self-assembly of microstructures: selective functionalization and fabrication of patterned spheres, December 2001, Chem Matters, 14, 24-26].

With respect to claims 1, 5 Bao et al teach a substrate comprising a polished silicon wafer with a photoresist-protecting layer (p. 24, col. 2), with probes immobilized in spot regions of the substrate (p.25, col.2).

8. With respect to claims 2, 4 with selected exposed areas functionalized with alkyl trimethoxysilanes (p. 25, col. 1).

9. With respect to claim 3, the probes are ssDNA with thiol-derivatized end groups (p. 25, col. 2).

10. With respect to claim 6, Bao et al teach a substrate comprising a polished silicon wafer with a photoresist-protecting layer (p. 24, col. 2), with probes immobilized in spot

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regions of the substrate (p.25, col.2). Spheres derivatized with complementary ssDNA are then added on the substrate, where binding between complementary ssDNA strands occurs (p. 25, col.2). Nonspecific bound spheres is removed by dissolving the photoresist layer (p. 26, col.1). Images of bound spheres are then taken, as seen in Fig. 4.

11. With respect to claim 7, the probes are ssDNA with thiol-derivatized end groups (p. 25, col. 2).

12. With respect to claims 8-10, selected exposed areas are functionalized with alkyl trimethoxysilanes (p. 25, col. 1).

Conclusion

13. No claims are allowed.

14. The following references are also cited as art of interest: Argitis et al [Argitis et al, Patterning of biomolecules with a new photolithographic methodology, Dec 2002, China – EU Forum on Nanosized Technology, p.245-250], Douvas et al [Douvas et al, Biocompatible photolithographic process for the patterning of biomolecules, 2002, Biosensors & Bioelectronics, 17, 269-278] teach the use of biocompatible photoresists in arrays, Zebala [US 6,159,681] teaches the use of a protective photoresist layer.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571) 272-0826. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson Yang
Patent Examiner
Art Unit 1641



LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

06/14/04